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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/523,371	SPIEGELMAN ET AL.	
	Examiner	Art Unit	
	Sharidan Carrillo	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/13/10*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4,8,9,11-15,36-38,40,41,43-47 and 50-55* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,8,9,11-15,36-38,40,41,43-47 and 50-55* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/13/10, 11/01/10*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 3-4, 8-9, 11-15, 36-38, 40-41, 43-47, 50-55 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The limitations of claim 1 constitute new matter not supported by the originally filed specification. Specifically, the limitations of "wherein the portion of the outgassed contaminants is transferred into the purified purge gas by diffusion or desorption" are new matter, not supported by the originally filed specification. Applicant argues that support can be found on pages 4, 9, and 14 of the provisional application of 60/475145. Applicant cited page 4, however, page 4 only states that the hydrocarbons are absorbed with XCDA. Page 6 states that the desorbed contaminants are collected downstream in the cold trap. The specification further teaches that contaminants are desorbed from a surface of a substrate and the desorbed contaminants are collected downstream in the cold trap. The specification does not teach that the outgassed contaminants are

transferred into the purified purge gas by desorption. Furthermore, page 6 does not teach that the outgassed contaminants are desorbed and transferred into the purified purge gas comprising oxygen and water. The purge gas described in the "Procedure" section compares XCDA and nitrogen, it does not describe XCDA and water.

3. Furthermore, applicant argues that the limitations of "the outgassed contaminants are transferred into the purge gas by diffusion" are supported by the provisional application. Applicant cites page 14 of the Provisional '145 for support. The Provisional '145 teaches on page 11 that XCDA generates some chemically active state that changes the volatility of the hydrocarbons such that the hydrocarbons are polarized on the surface and are swept away by the bulk stream. Page 11 further states that the outgassing of hydrocarbons by XCDA augments the increased thermal diffusion rate that is seen in nitrogen. The thermal diffusion refers to nitrogen and not XCDA and therefore, the limitations of "the outgassed contaminants are transferred into the purge gas by diffusion" constitute new matter, since the diffusion refers to nitrogen. The diffusion does not refer to XCDA, nor does it refer to oxygen and water.

4. The limitations of claim 53 constitute new matter not supported by the originally filed specification. Claim 53 is directed to outgassing the organic contaminant by contacting the surface with a purified purge gas comprising O2 and water. Applicant argues that support can be found in the provisional application 60/ 475145. Specifically, applicant states that the XCDA is passed through a bubbler containing UHP water, and directs applicant's attention to page 15 of the provisional application. Applicant's arguments are unpersuasive. Page15 of the provisional teaches using a bubbler to

"avoid electrostatic buildup". The provisional does not teach using oxygen in combination with water to perform the claimed methods. Specifically, the bubbler is directed to reducing electrostatic buildup and not directed to outgassing a contaminant from a component in the semiconductor manufacturing process. Therefore the limitations of claim 53 constitute new matter not supported by the originally filed specification or applicant's provisional application.

5. Re claim 55, applicant cites pages 14-15 of the Provisional application and relies on the teachings of a moisturizer using a bubbler. Applicant's arguments are unpersuasive for the reasons cited above. Specifically, reference to the bubbler is directed to reducing electrostatic buildup and not directed to outgassing a contaminant from a component in the semiconductor manufacturing process. Additionally, the instant specification, along with the provisional application fails to teach dehumidifying the purified purge gas comprising oxygen, then adding a controlled amount of water to the dehumidified purge gas to form a purified purge gas comprising oxygen and water, wherein the AMC is outgassed from the surface of the substrate by contacting at least a portion of the substrate with the purified purge gas comprising oxygen and water. Furthermore, applicant argues that the Provisional Application "145 teaches less than 1ppm of reduced contaminants. However, claim 55 is directed to less than 1 ppt of AMC concentration.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1, 3-4, 8-9, 11, 38, 41, 43-47, and 53-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Somekh (6427703) in view of Wu et al. (6610123) and further in view of Alvarez Jr. et al. (6391090).

In reference to claims 1, 46, and 53-54, Somekh teaches purging a lithography chamber with water vapor/oxygen containing compound to remove carbon

contamination (Figs. 2a, 4) and removing the contamination with a vacuum pump (col. 5, lines 35-40, col. 6, lines 20-25). In reference to the limitations of a purge gas comprising oxygen and water, the teachings of adding water to the purge gas reads on applicant's claimed invention. Additionally, claim 2 of Somekh teaches water vapor doped oxygen compounds. Additionally, it is well known, as evidenced by Kern (Handbook of Semiconductor Wafer Cleaning Technology, 1993, pages 88-89), that oxygen gas contains a small concentration of contaminants such as water. Therefore, one would reasonably expect the oxygen gas of Somekh to include water vapor. Re in reference to the limitations of "outgassing the AMC from the surface of the substrate, col. 8-9 teaches that hydrocarbon gas present in the chamber is oxidized and evacuated from the chamber. Therefore, Somekh teaches outgassing the AMC from the surface of the substrate. Specifically, Somekh teaches driving off gas from the substrate surface.

The limitations of the outgassed contaminants transferred into the purified purge gas by diffusion or desorption are met by Somekh for the following reasons. In reference to diffusion, the limitations are met since the contaminants are oxidized and exhausted with the oxidizer (oxygen containing compounds). Specifically, in col. 3, lines 25-30, Somekh teaches that the carbon contamination is oxidized and a volatile gas species comprising oxidized carbon gas is produced, the volatile gas is pumped out of the chamber by a vacuum pump. The limitations of diffusion are met since the skilled artisan would reasonably expect the volatile gas to mix with the oxidizer gas during the

exhausting step, and therefore the contaminants (i.e .volatile gas) are transferred into the purified gas (oxidizer) by diffusion.

The limitations of the outgassed contaminants transferred into the purified purge gas by desorption are also met for the following reasons. Desorption is broadly defined as "to remove an adsorbed or absorbed material therefrom". Since the carbon contaminants are being removed from the chamber walls with an oxidizer source, the limitations are met by Somekh.

Somekh teaches the invention substantially as claimed with the exception of the temperature limitation of the purified purge gas. Wu teaches a method of removing contaminants from an enclosure during photolithography using a purge gas (col. 1, lines 5-10, clean dry air). In col. 3, lines 1-10, Wu teaches that the temperature of purge gas is set to ambient temperature +/-0.2 degrees centigrade in order not to damage the components present in the enclosure. It would have been obvious to a person of ordinary skill in the art to have modified the method of Somekh, to include the ambient temperature of the purge gas, as taught by Wu et al., for purposes of not damaging the components and also to provide the same ambient conditions as that of the photolithographic system.

Somekh in view of Wu et al. fail to teach purified gases having an AMC concentration level of less than 1ppt.

Alvarez Jr. et al. teach purification of gases used in photolithography in order to reduce the contamination level to 1ppb or lower (col. 7, lines 7-10, col. 8, lines 15-17)

such that molecular contaminants on the optical components of the lithography tool is reduced. In col. 8, line 17, Alvarez teaches 100ppt.

It would have been obvious to a person of ordinary skill in the art to have modified the modified method of Somekh to include purification of the lens gases, as taught by Alvarez such that contaminants in the optical components can be avoided. In reference to claims 3-4, and 53, it would have been well within the level of the skilled artisan to repeatedly purify the gases until the desired level of contaminants of less than 1ppt or lower is achieved. Arguably, the skilled artisan would have recognized the advantages of reducing the contaminants in the purified lens gases to values in the ppt range and/or close to zero. In reference to claims 8-9, Somekh fails to teach water in the gas of at least about 100 ppm. Alvarez teaches reducing the amount of water to as low as 10-100ppm.In reference to claims 11 and 38, refer to col. 6, lines 1-5 of Somekh. Re claim 41, refer to the teachings of Wu et al.

In reference to claim 46, Somekh in view of Wu and Alvarez fail to teach the purified gas removing AMC at a faster rate than the same method using nitrogen. However, since Somekh teaches contacting the substrate with water vapor, one would reasonably expect the rate of removal of AMC to be faster than nitrogen having no water present since Somekh is performing the same method steps using the same composition as instantly claimed and recited in the specification. The burden is shifted on applicant to show why the purge gases of Somekh would not produce a faster rate of removal of AMC, especially since the instant specification teaches increasing of the

water content increases the removal rate. Re claim 43, refer to col. 6, line 24 of Somekh. Re claims 44-45 and 47, refer to the teachings of Wu et al.

9. Claims 14-15, 40, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Somekh (6427703) in view of Wu et al. (6610123) and Alvarez Jr. et al. (6391090), as applied to claims 1, 3-4, 8-9, 11, 38, 41, 43-47 and 53-54, as described in paragraph 8 above, and further in view of Van Schaik et al. (6724460).

Somekh in view of Wu et al., and Alvarez fail to teach purging with an inert gas. Van Schaik et al. teach in-situ cleaning of optical components for use in a lithographic apparatus. In col. 4, lines 1-22, Van Schaik teach purging with nitrogen. Col. 8, lines 1-5 teaches inert gases also include argon. It would have been obvious to a person of ordinary skill in the art to have modified the modified method of Somekh to include purging with an inert gas, since Van Schaik et al. teach it is conventional to purge with an inert gas in order to remove contaminants from the lithographic apparatus. Re claim 40, Van Schaik teaches 20% of oxygen (col. 9, lines 40-45).

10. Claims 1, 3-4, 8-9, 11, 38, 40-41, 43-47, and 51-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Der Net et al. (US2005/0017198) in view of Alvarez Jr. et al. (6391090).

Re claims 1 and 51-54, Van Der Net teaches purging an optical component of a lithographic apparatus to remove contaminants with an ultra high purity gas comprising dry air in combination with moisture (paragraphs 43, 53). Furthermore, paragraph 43 teaches purified clean dry air. The limitations of oxygen are met since it is well known that a major component of air includes oxygen.

The limitations of the outgassed contaminants are transferred into the purified purge gas by diffusion or desorption are met by teachings of Van Der Net for the following reasons. Paragraphs 14 and 18 teach purging a lithographic projection apparatus with a ultra high purity gas to remove hydrocarbon contamination. The skilled artisan would reasonably expect during the step of purging the hydrocarbon contamination is diffused into the ultra high purity gas. Furthermore, based on the general definition of desorption, since the contaminants are removed from the surface by the purified gas, the limitations of desorption are met. Additionally, in the absence of a showing of criticality and/or unexpected results, since Van Der Net is performing the same steps of removing contaminants by purging with an ultra high purity gas as the instantly claimed invention, the skilled artisan would reasonably expect the limitations of desorption and diffusion to be met.

Re claims 1, 3-4, Van Der Net et al. fail to teach purification of the purge gas to less than 1 ppb. Alvarez Jr. et al. teach purification of gases used in photolithography in order to reduce the contamination level to 1ppb or lower (col. 7, lines 7-10, col. 8, lines 15-17) such that molecular contaminants on the optical components of the lithography tool is reduced. In col. 8, line 17, Alvarez teaches 100ppt.

It would have been obvious to a person of ordinary skill in the art to have modified the method of Van Der Net to include purification of the lens gases, as taught by Alvarez such that contaminants in the optical components can be avoided. In reference to claims 3-5 and 53, it would have been well within the level of the skilled artisan to repeatedly purify the gases until the desired level of contaminants of less than

1ppb or lower is achieved. Arguably, the skilled artisan would have recognized the advantages of reducing the contaminants in the purified lens gases to values in the ppt range and/or close to zero. Re claims 8-9, Van Der Net teaches adjusting the moisture between about 0-100% (paragraph 55). Re claims 11 and 38, refer to paragraph 28, which teaches a wafer. Re claim 40, it is well known and conventional in the art that dry air comprises 20% by volume of oxygen, as further evidenced by Engineering Tool Box. Re claim 41, Van Der Net teaches purified CDA which reads on extra clean dry air. Re claim 46, Van Der Net in view of Alvarez fails to teach the purified gas removing AMC at a faster rate than the same method using ultra high purity nitrogen without water added thereto. However, since Van Der Net in combination with Alvarez teach contacting the substrate with purge gas comprising oxygen, wherein the purge gas has a certain concentration of water present, one would reasonably expect the rate of removal of AMC to be faster than nitrogen having no water present since Van Der Net is performing the same method steps using the same composition as instantly claimed and recited in the specification. The burden is shifted on applicant to show why the purge gases of Van Der Net, having a concentration of water present therein, would not produce a faster rate of removal of AMC. Re claim 43, refer to paragraph 43 of Van Der Net. Re claims 44-45, and 47, paragraph 49 teaches ambient conditions, which are no higher than 80C or no higher than 50C.

11. Claims 14-15 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Der Net et al. (US2005/0017198) in view of Alvarez Jr. et al. (6391090), as

applied to claims 1, 3-4, 8-9, 11, 38, 40-41, 43-47, and 51-54, as described in paragraph 10 above, and further in view of Van Schaik et al. (6724460).

Van Der Net in view of Alvarez fail to teach purging with an inert gas. Van Schaik et al. teach in-situ cleaning of optical components for use in a lithographic apparatus. In col. 7, lines 56-65, Van Schaik teach purging with nitrogen. Col. 8, lines 1-5 teaches inert gases also include argon. It would have been obvious to a person of ordinary skill in the art to have modified the modified method of Van Der Net et al. to include purging with an inert gas, since Van Schaik et al. teach it is conventional to purge with an inert gas in order to remove contaminants from the lithographic apparatus.

12. Claims 52-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Schaik et al. (6724460) in view of Alvarez Jr. et al. (6391090).

Van Schaik et al. teach in-situ cleaning by purging a lithographic apparatus with a purge gas composition to remove hydrocarbon contamination. In col. 7, lines 23-25, Van Schaik teaches the purge gas may contain one or a mixture of oxygen containing species selected from water, nitrogen oxides and oxygen containing hydrocarbons. Furthermore, col. 7, lines 40-45 teaches the addition of molecular oxygen and water to the purge gas. Also the abstract teaches molecular oxygen. Therefore, Van Schaik teaches a mixture of water and nitrogen oxides, which reads on applicant's claim language of water in combination with oxygen.

Furthermore, based on the general definition of desorption, since the contaminants are removed from the surface by the purge gas, the limitations of

desorption are met. Additionally, in the absence of a showing of criticality and/or unexpected results, since Van Schaik is performing the same steps of removing contaminants by purging with a purge gas as the instantly claimed invention, the skilled artisan would reasonably expect the limitations of desorption and diffusion to be met. The skilled artisan would reasonably expect the contaminants to be diffused into the purge gas as they are being removed from the surface of the optical component.

Van Schaik fails to teach purification of the purge gas to less than 1 ppm. Alvarez Jr. et al. teach purification of gases used in photolithography in order to reduce the contamination level to 1ppb or lower (col. 7, lines 7-10, col. 8, lines 15-17) such that molecular contaminants on the optical components of the lithography tool is reduced. In col. 8, line 17, Alvarez teaches 100ppt.

It would have been obvious to a person of ordinary skill in the art to have modified the method of Van Schaik to include purification of the lens gases, as taught by Alvarez such that contaminants in the optical components can be avoided. In reference to "conditions that do not chemically change or alter the AMC", the limitations are met by Van Schaik because Van Schaik teaches removing hydrocarbons and other contaminants from the surface of the optical component. Van Schaik teaches that the purge gas is chemically altered by forming radicals, however the contaminants are removed and not chemically altered. Therefore, the limitations are met by the prior art.

Double Patenting

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

14. Claims 1, 3-4, 11, 14-15, 38, 40-41, 43-45, 50 and 52-54 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4, 7, 9-14, and 20-23 of U.S. Patent No. 7189291. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims are directed to removing contaminants from a substrate using a purified purge gas comprising oxygen.

15. Claims 1, 3, 8, 11, 14-15, 38, 41, 43, 46, and 50-54 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 6, 11-21, and 23-24 of U.S. Patent No. 7377982. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims are directed to removing contaminants from a substrate using a purified purge gas comprising water.

Response to Arguments

16. The rejections of the claims, under 112, first paragraph are maintained for the reasons set forth above. The examiner maintains the position that the Provisional Application 60/475145 does not provide support for claims 53-54, for the reasons recited above. Additionally, the new limitations of desorption and diffusion are not supported by the Provisional Application, for the reasons recited above.

17. The rejection of the claims, under 112, second paragraph is withdrawn in view of arguments presented by applicant.

18. Applicant argues that the prior art of Van Der Net is not applicable as prior art because the filing date is after the effective filing date of the instant application.

Applicant specifically argues that claims of the present application are supported by the U.S. Provisional application No 60/475145 with a filing date of 6/2/03, which is before the filing date of 7/21/03 of the Van Der Net reference. Applicant's arguments are not persuasive because the claimed invention is not supported by the provisional application, and therefore the effective filing date of the instantly claimed invention is 10/10/03, after the filing date of the Van Der Net reference. Specifically, the limitations of the purge gas comprising oxygen and water are not supported by the provisional application for the reasons recited above. The reference to the addition of water, as described in the provisional application, is directed to the reduction of static electricity. Furthermore, the new limitations of "outgassed contaminants transferred into the purified purge gas by diffusion and desorption" are not supported by the Provisional Application "145, for the reasons recited above.

19. Re Van Der Net in view of Alvarez, applicant argues that the skilled artisan would not have been motivated to combine the references because Van Der Net teaches adding moisture and Alvarez states the importance of removing water. Specifically, applicant argues that paragraph 56 of Van Der Net teaches a relative humidity above or equal to 25%, which would be greater than 1ppb thought by Alvarez. Applicant's arguments are unpersuasive because paragraph 55 of Van Der Net teaches that the purge gas mixture can contain have a relative humidity between 0-100% and therefore the purge gas of Van Der Net could contain, as one embodiment, no moisture or water having concentration amounts in the ppm range. Based on the teachings of Van Der Net, the relative humidity of the purge gas can be adjusted between 0-100%.

Specifically, Van Der Net teaches that the amount of moisture (relative humidity) present in the purge gas can be adjusted between 0-100%. The examiner maintains the position that Van Der Net teaches adjusting the moisture, such that the purge gas can have an amount of moisture within the range of 0-100%. Alvarez clearly teaches that the lens gases conventionally have water present in the ppm range. Therefore, as one possible embodiment the purge gas of Van Der Net could have water in the ppm range. A prior art reference must be considered in its entirety, i.e.,, as a whole, including portions that would lead away from the claimed invention. W.L. Gore & Associates, Inc. V. Garlock, Inc., 721 F.2d 1540,220 USPQ 303 (Fed. Cir. 1983), cert. Denied, 469 U.S. 851 (1984), see MPEP 2141.02, MPEP 2145X.D. 1. All disclosures of the prior art, including non-preferred embodiment, must be considered. See In re Lamberti and Konort, 192 USPQ 278 (CCPA 1967); In re Snow 176 USPQ, 328, 329 (CCPA 1973).

20. In reference to Somekh, Wu, and Alvarez, applicant argues that Somekh fails to teach the new limitations of transferring the outgassed contaminants into the purified purge gas by diffusion or desorption. Applicant's arguments are unpersuasive for the reasons recited above. Specifically, the limitations of the outgassed contaminants transferred into the purified purge gas by diffusion or desorption are met by Somekh for the following reasons. In reference to diffusion, the limitations are met since the contaminants are oxidized and exhausted with the oxidizer (oxygen containing compounds). Specifically, in col. 3, lines 25-30, Somekh teaches that the carbon contamination is oxidized and a volatile gas species comprising oxidized carbon gas is produced, the volatile gas is pumped out of the chamber by a vacuum pump. The

limitations of diffusion are met since the skilled artisan would reasonably expect the volatile gas to mix with the oxidizer gas during the exhausting step, and therefore the contaminants (i.e .volatile gas) are transferred into the purified gas (oxidizer) by diffusion.

The limitations of the outgassed contaminants transferred into the purified purge gas by desorption are also met for the following reasons. Desorption is broadly defined as "to remove an adsorbed or absorbed material therefrom". Since the carbon contaminants are being removed from the chamber walls with an oxidizer source, the limitations are met by Somekh.

Applicant further argues that diffusion or desorption excludes chemically altering or reacting with the contaminants. Applicant's arguments are unpersuasive because the specification has not defined diffusion or desorption to exclude chemical altering or reacting with the contaminants. Furthermore, desorption is broadly defined as well to mean " to remove (an adsorbed or absorbed material) by a chemical or physical process".

21. Applicant argues the combination of Somekh in view of Wu since Wu teaches that in certain applications Clean Dry Air is unacceptable and helium or nitrogen should be selected. Specifically, applicant argues that the skilled artisan would not modify the teachings of Wu to include an oxygen containing purge gas, followed by the addition of water. Applicant's arguments are not persuasive. The examiner is not modifying the purge gas of Wu. The secondary reference of Wu is relied upon to teach the temperature of the purge gas. Furthermore, by applicant's own remarks above, Clean

Dry Air is used in some applications since applicant states that only "in certain applications, Clean Dry Air is unacceptable". This passage clearly teaches that Clean Dry air can be used. Similarly, the purge gas of Alvarez is not being modified and the secondary reference of Alvarez is relied upon to teach purification of the purge gas to the ppt levels. The secondary reference of Van Schaik is relied upon to teach that it is well known in the art to clean optical components for use in a lithographic apparatus by purging with nitrogen.

22. Re Van Schaik in view of Alvarez, applicant argues that the prior art fails to teach the newly amended limitations of claims 52-53. Applicant's arguments are unpersuasive for the reasons described above. Specifically, based on the general definition of desorption, since the contaminants are removed from the surface by the purge gas, the limitations of desorption are met. Additionally, in the absence of a showing of criticality and/or unexpected results, since Van Schaik is performing the same steps of removing contaminants by purging with a purge gas as the instantly claimed invention, the skilled artisan would reasonably expect the limitations of desorption and diffusion to be met. The skilled artisan would reasonably expect the contaminants to be diffused into the purge gas as they are being removed from the surface of the optical component.

23. The double patenting rejections are maintained. No new arguments have been presented.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharidan Carrillo whose telephone number is 571-272-

1297. The examiner can normally be reached on M-W, F 6:30-5:00pm, alternating Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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